

Amendments to the Claims

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

1-19. (canceled)

20. (new) A system for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising:

a movable unit; and

a fixed unit;

wherein the movable unit is combined with the tyre,

wherein the movable unit comprises:

a device for sensing the at least one characteristic parameter;

a device for transmitting signals out of the tyre;

a processing unit; and

a storage device;

wherein the fixed unit is combinable with the vehicle,

wherein the fixed unit comprises a device for receiving signals from the movable unit,

wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter.

21. (new) The system of claim 20, wherein the movable unit further comprises:
 - a device for generating electrical energy;
 - wherein the electrical energy generating device is capable of supplying electrical energy to the processing unit, and
 - wherein the electrical energy generating device is capable of supplying electrical energy to the transmitting device.
22. (new) The system of claim 20, wherein the storage device comprises at least one pre-stored procedure capable of performing the pre-processing of the signal generated by the sensing device.
23. (new) The system of claim 20, wherein the signal generated by the sensing device is converted into a digital signal by the processing unit.
24. (new) The system of claim 20, wherein the sensing device, the transmitting device, the processing unit, and the storage device are produced on a substrate.
25. (new) The system of claim 24, wherein the movable unit is produced by micro-electro-mechanical systems (MEMS) technology.

26. (new) The system of claim 20, wherein the electrical energy generating device comprises a capacitor that charges itself with electrical energy in response to mechanical stresses applied to the tyre.

27. (new) The system of claim 26, wherein the capacitor comprises:

a fixed plate; and

a movable plate;

wherein the fixed plate and the movable plate move with respect to each other in response to the mechanical stresses.

28. (new) The system of claim 27, wherein a distance between the fixed plate and the movable plate can vary in response to the mechanical stresses.

29. (new) The system of claim 27, wherein the fixed plate and the movable plate are connected to each other by a pair of springs.

30. (new) The system of claim 27, wherein the fixed plate is connected to a fixed support, and

wherein the movable plate is connected to a movable support.

31. (new) The system of claim 27, wherein movement of the movable plate is bounded by a pair of end-stop elements.

32. (new) The system of claim 20, wherein the sensing device, the transmitting device, the processing unit, and the electrical energy generating device are produced on a substrate.

33. (new) The system of claim 32, wherein the movable unit is produced by micro-electro-mechanical systems (MEMS) technology.

34. (new) A method for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising:

sensing inside the tyre a signal relating to the at least one characteristic parameter;
processing the signal inside the tyre using procedures pre-stored in a storage device; and
transmitting the processed signal out of the tyre.

35. (new) The method of claim 34, wherein processing the signal comprises digitizing the signal.

36. (new) The method of claim 34, wherein processing the signal comprises filtering the signal.

37. (new) The method of claim 34, wherein processing the signal comprises comparing the signal with a threshold value pre-stored in the storage device.

38. (new) A movable unit for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising:

a device for sensing the at least one characteristic parameter;

a device for transmitting signals out of the tyre;

a processing unit; and

a storage device;

wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter.

39. (new) A vehicle wheel, comprising:

a tyre;

a supporting rim for the tyre; and

a movable unit combined with the tyre;

wherein the movable unit comprises:

a device for sensing at least one characteristic parameter of the tyre;

a device for transmitting signals out of the tyre;

a processing unit; and

a storage device;

wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter.